

REMARKS

Claim 25 has been amended to require the fused silica of now canceled claim 30. New claims 92-101 have been added. Independent claim 92 recites that the amount of one or more monofunctional, difunctional, or trifunctional acrylate or methacrylate monomers in amount of at least 80 percent by weight in part A. Likewise, new dependent claim 91 has been added which recites the same limitation. Support is found through the specification, examples, and, e.g., claim 11. See also the specification at page 11, lines 23-27. Claims 26 and 88 have been modified as suggested by the examiner to overcome the §112, ¶2 rejections based on form of the claims. Withdrawal of the §112, ¶2 rejection is respectfully requested. No new matter is added. Upon entry of the amendments, the pending claims will constitute claims 24-28, 30-31, and 91-101.

At page 3, section 1 of the office action, claims 24-28, 31, and 88-90 were rejected under §103 based on Date et al. (US 6,576,081). Claim 29 was not rejected. Claim 29 has been incorporated into claim 24. Hence, this rejection should be withdrawn.

New independent claim 92 has been added, which recites that the amount of one or more monofunctional, difunctional, or trifunctional acrylate or methacrylate monomers in amount of at least 80 percent by weight in part A. New claim 91, which depends from claim 24 recites this same limitation. This amount of acrylate distinguishes the claims from Date et al., which does not disclose adhesives using this amount of acrylate. Accordingly, claims 91-101 should be allowed for this additional reason.

At page 4, section 2 of the office action, claims 24-28, 31, and 88-90 were rejected under §103 based on Dunn et al. (US 4,581,427), EP 452,540, and JP 53-144760. Claim 29 was not rejected. Claim 29 has been incorporated into claim 24. Hence, this rejection should be withdrawn.

New independent claim 92 has been added, which recites that the amount of one or more monofunctional, difunctional, or trifunctional acrylate or methacrylate monomers in amount of at least 80 percent by weight in part A. New claim 91, which depends from claim 24 recites this same limitation. This amount of acrylate distinguishes the claims from Date et al.,

which does not disclose adhesives using this amount of acrylate. Accordingly, claims 91-101 should be allowed for this additional reason.

At page 6, section 9 of the office action, claim 29 was rejected under §103 based on Date et al. in view of Edelman et al. (US 5,865,936). Claim 29 has been incorporated into claim 24. Applicant traverses this rejection.

Date et al. discloses a two-pack adhesive containing an acrylic monomer, a peroxide, a reducing agent (e.g., an amine), an epoxy resin precursor and a curing agent (e.g., imidazole). The adhesive is used to bond functional elements such as integrated circuits to a mounting substrate. Date et al. states that the invention is directed to an improvement over an acrylic resin used for the same purpose. (See column 2, lines 30-47.) Date et al.'s improvement is to use both an acrylic monomer and an epoxy resin precursor. Date et al. mentions the possibility of conductive fillers (e.g., encapsulated metal particles) having a particle diameter between 2 and 12 microns (see col. 6, lines 45 through col. 7, line 3). However, Date et al. is very specific that the particle diameter should not be greater than 12 microns, otherwise "there is a fear that an unnecessary portion might be rendered conductive. That is undesirable." (Col. 7, lines 1-3.) Date et al. also mentions that alumina and aluminum nitride can be used as a filler for the mixed adhesive used in the bonding method disclosed therein, preferably in an amount of from 20 to 60%. However, Date et al. does not teach or suggest the use or desirability of thixotropic agents. Note that thixotropic agents undergo a reduction in viscosity when shaken, and which thickens on standing. There is no indication that alumina or alumina nitride possess this quality or that this property is desired in the Date et al. adhesive.

Edelman et al. discloses, by contrast, a two part structural acrylic adhesive containing acrylate or methacrylate monomers or oligomers, maleic acid, a hydroperoxide, and a source of ferrous ions in a first part, and containing dihydropyridine in a second part. Fumed silica is mentioned at column 4, lines 5-12 as a possible thixotropic agent. The adhesive is used as a fast curing structural adhesive for substrates such as steel. Edelman et al. states that the structural adhesive has a long shelf life "for reasons that are not completely understood." (Col. 2, lines 1-2.) The amine is present in the part B in Edelman et al.

In addition, the adhesive in Date et al. is used to bond functional elements such as integrated circuits to a mounting substrate. Edelman et al., on the other hand, discloses an

adhesive for fast curing structural adhesive, such as for a steel substrate. Particularly since the end use are so different and the properties desired are thus also different, a skilled artisan working with adhesives for bonding integrated circuits to a mounting substrate would not be motivated to look to a structural adhesive. For this additional reason, the combination is improper.

It is respectfully submitted that the examiner has failed to make out a prima facie case of obviousness because the references were improperly combined. In view of the foregoing, there is no teaching, suggestion, or motivation to employ a thixotropic agent in the adhesive of Date et al. Indeed, given the end use (bonding functional elements such as integrated circuits to a mounting surface) in Date et al. Moreover, the mechanism of polymerization is totally different in Edelman et al., exemplified by the use of the amine the part B and wherein the amine is specifically a substituted dihydropyridine, unlike the present claims and Date et al. A skilled artisan would thus not be inclined to look to Edelman et al. for ingredients to use in the adhesive of Date et al.

Assuming arguendo that the combination is proper, the examiner cannot omit required components of Edeleman et al. – e.g., use of the amine in the B side -- would also need to be added to Date et al. which would appear to destroy the purpose of the Date et al. adhesive. Consequently, a skilled artisan would not make the combination.

Furthermore, new independent claim 92 has been added, which recites that the amount of one or more monofunctional, difunctional, or trifunctional acrylate or methacrylate monomers in amount of at least 80 percent by weight in part A. New claim 91, which depends from claim 24, recites this same limitation. This amount of acrylate distinguishes the claims from Date et al., which does not disclose adhesives using this amount of acrylate. Accordingly, claims 91-101 should be allowed for this additional reason.

Claims 25, 29, and 90 were rejected under §103(a) as obvious based on Dunn et al. (US 4,581,427) and the EP case and JP '760 as applied to claims 24, 26-28, 31, 88, and 89, and further in view of Edelman et al., Date et al., and JP '165. Claim 24 has been amended to incorporate the limitations of claim 29. Applicant traverses this ground of rejection.

At page 7, the examiner states:

14. It would have been obvious to incorporate an adhesion promoter and/or a thixotropic agent such as the fumed silica of Edelman et al. into the part of Dunn et al., the European patent and Japanese '760 with the (meth)acrylate monomers and N,N-di(ethyl or methyl)-p-toluidine in order to control the viscosity.

15. It would have been obvious to blend the peroxide of Dunn et al., the European patent and Japanese '760 with the solvent of Date et al. and Japanese '165 such as the methyl ethyl ketone, methyl isobutyl ketone or acetone of Date et al. in order to optimize viscosity.

Applicant disagrees.

At the outset, applicant notes that this rejection has several embedded rejections. As written, applicant finds the rejection difficult to interpret. Moreover, the rejections are conclusory, lacking adequate reasoning for the rejections. If on reconsideration the examiner maintains the rejections, it is respectfully requested that the examiner more clearly articulates the reasoning. That being said, applicant will address the rejections based on applicant's understanding of the rationale for the rejections.

As an initial matter, it should be noted that JP '165 is irrelevant. JP '165 discloses use of tetramethylothiourea, which is a thio-amide and is not an amine. The rejections based on JP '165 should be withdrawn.

In addition, none of the references, alone or in combination, teach or suggest the composition of new independent claim 92 and its dependent claims.

Dunn et al. combined with Edelman

Dunn et al. is deficient because the amine is in the cure system (part B). See column 2. In addition, Dunn et al. fails to disclose a solvent in the cure system. Column 1, lines 60-66, relied upon by the examiner, does not fill the gap, especially because it is stated that the initiator "must be kept apart from ingredients 5 and 6," i.e., the ferrocene and the amine accelerator." (Col. 2, lines 63-66.) Indeed, Dunn et al. states that the two-component system is mixed to form a one-component composition prior to application, which thus teaches away from use of a solvent. Dunn et al. does not disclose a primer based system.

It should be noted that in the context of the present invention, as explained in the specification, the solvent is not an acrylate. See page page 12, line 1-7. This term must be interpreted in light of the specification, not in a vacuum. As such, the examiner's argument that the monomers and peroxide function as a solvent is incorrect. That is, even if the examiner correctly states that the monomers and peroxide function as a solvent in Dunn et al, it does not teach or suggest applicant's claims where the term "solvent" does not encompass a monomer or a peroxide. Claims 30, 90, 97, and 100 further distinguish from Dunn et al. in calling for particular solvents.

The examiner asserts it would be obvious to incorporate fumed silica of Edelman et al. into Dunn et al. The only reason stated by the examiner is "to control viscosity." However, this is circular reasoning. Fumed silica is a thixotropic agent; hence, it controls viscosity. Applicant also objects the examiner's conclusory rejection. The examiner fails to point to a teaching or suggest in the references themselves to support the combination.

In view of the foregoing, Dunn et al. fails to teach or suggest the claimed invention. The rejection should be withdrawn, with or without Date et al. or Edelman et al.

European patent combined with Edelman et al.

Next, the examiner rejects these claims based on the EP patent, apparently in view of Edelman et al. However, the EP patent clearly states that the adhesives "contain no solvent." Edelman et al. does not fill the gap. The EP patent, with or without Edelman et al.'s fumed silica, does not teach or suggest the claimed invention. Applicant also objects the examiner's conclusory rejection. Accordingly, the rejection should be withdrawn.

JP '760 combined with Edelman et al.

The examiner relies upon JP '760. However, JP '760 is also silent as to use of a solvent. Likewise, JP '760 does not disclose a primer. Instead, the two liquids are mixed. Applicant also objects the examiner's conclusory rejection. Accordingly, the rejection based on JP '760, with or without Edelman et al.'s fumed silica should be withdrawn.

Dunn et al. combined with Date et al. and JP '165

The examiner asserts it would be obvious to blend the peroxide of Dunn et al. with the solvent of Date et al. or JP 165. Applicant also objects the examiner's conclusory rejection, which lacks any reasoning with only a conclusory explanation for the combination. For these reasons alone, the rejection should be withdrawn.

In addition, as explained above, Dunn et al. does not disclose a solvent as that term is understood in the art and as used in the claims. In fact, Dunn et al. teaches away from use of a solvent. The combination of Dunn et al. with either Date et al. or JP '165 is therefore improper and should be withdrawn. Thus, even if it would be obvious to blend the peroxide of Dunn et al. with the solvent of Date et al., it does not add up to the claimed invention. Nor has the examiner adequately explained why a skilled artisan would make this alleged combination. Applicant also objects the examiner's conclusory rejection. The rejection should be withdrawn.

As explained above, the European patent clearly states that the adhesives "contain no solvent." Hence it is improper to combine the solvent of Date et al. or JP '165 with the European patent. Applicant also objects the examiner's conclusory rejection. The rejection should be withdrawn.

As explained above, JP '760 is also silent as to use of a solvent. Likewise, JP '760 does not disclose a primer. Instead, the two liquids are mixed. Hence it is improper to combine the solvent of Date et al. or JP '165 with JP '760. Applicant also objects the examiner's conclusory rejection. Accordingly, the rejection based on JP '760, with or without Date et al. or JP '165 should be withdrawn.

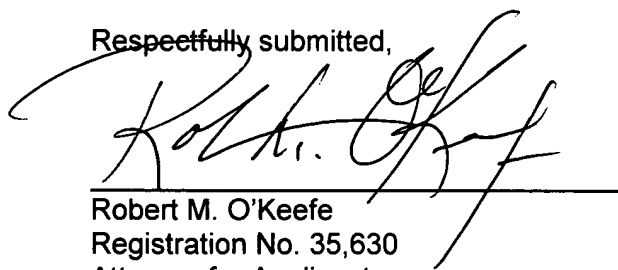
CONCLUSION

Favorable reconsideration is courteously solicited. The claims are believed to be in condition for allowance, and prompt Notice of Allowance is respectfully requested.

Should any fees under 37 CRF 1.16-1.21 be required for any reason relating to the enclosed materials, the Commissioner is authorized to deduct such fees from O'Keefe, Egan & Peterman Deposit Account No. 10-1205.

The examiner is invited to contact the undersigned at the phone number indicated below with any questions or comments, or to otherwise facilitate expeditious and compact prosecution of the application.

Respectfully submitted,



Robert M. O'Keefe
Registration No. 35,630
Attorney for Applicant

O'KEEFE, EGAN & PETERMAN
1101 Capital of Texas Highway South
Building C, Suite 200
Austin, Texas 78746
(512) 347-1611
FAX: (512) 347-1615